GOVERNMENT OF INDIA
AGRICULTURE
LOK SABHA

UNSTARRED QUESTION NO:3372
ANSWERED ON:22.12.2008
PRODUCTION OF NEW GENETIC POTATO
Patel Shri Kishanbhai Vestabhai;Sai Shri Nand Kumar;Singh Shri Sugrib;Verma Shri Ravi Prakash

Will the Minister of AGRICULTURE be pleased to state:

(a) whether Indian scientists have been able to increase the protein quantity in potato by making suitable genetic changes therein;

(b) if so, the details thereof;

(c) the name of the States in which such field trials have been carried out; and

(d) the time by which commercial production of new genetic potato is likely to be started in the country?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE(SHRI KANTILAL BHURIA)

(a) & (b): Yes,Sir. Transgenic lines of commercial Indian potato varieties have been developed under a collaborative effort between Central Potato Research Institute (ICAR), Shimla and National Institute on Plant Genome Research (DBT), New Delhi.

The project was started in the year 1999-2000 to improve nutritional quality of Potato protein by expressing the high quality seed storage protein (AmA1) of Amaranthus hypochondriacus (Ramdana). Eight Indian potato cultivars viz., Kufri Chipsona 1, Kufri Chipsona 2, Kufri Badshah, Kufri Sutlej, Kufri Jyoti, Kufri Pukhraj, Kufri Bahar, and Kufri Sindhuri were transformed with the AmA1 gene. Initially, forty transgenic lines were evaluated at CPRI, Shimla and CPRI Campus Modipuram under transgenic greenhouse.Based on tuber yield and expression of AmA1 gene, 2 lines each of 7 potato cultivars were selected for further limited field trial at CPRIC, Modipuram (2003-04, 2004-05, 2005-06), CPRS, Jalandhar (2004-05 and 2005-06), and NIPGR, New Delhi (2004-05 and 2005-06).

Significant increase in protein content was observed in two transgenic lines of Kufri Chipsona 2 (K. Chipsona 2/15 and K. Chipsona 2/40) and one line each of Kufri Badshah(K. Badshah/5) and Kufri Sutlej (K. Sutlej/3).Increase in protein content was 41% in K. Chipsona2/40, 39% in K. Chipsona2/15, 21% in K. Sutlej/3 and 16% in K. Badshah/5.

(c) & (d): No field trial could be undertaken due to ban during last 2 years.Field trial can be undertaken only after the approval of Genetic Engineering Approval Committee.At least 4-5 years would be needed for commercial exploitation of the lines.